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CHENG, PETER L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/678,993	**Applicant(s)** DEER ET AL.	
	Examiner Peter L. Cheng	**Art Unit** 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2003*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 45* is/are pending in the application.
  4a) Of the above claim(s) *8 - 45* is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1 - 7* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date *10/3/2003*.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentability distinct species of the claimed invention:

I. Species of the embodiment disclosed on page 2, lines 7 – 15; in particular, the invention, in one form, that requires

- measuring a plurality of test patches to obtain color data *associated with the imaging object*,
- generating a signature color data lookup table based on the color data,
- combining the signature color data lookup table with the standard color conversion lookup table to generate a composite color conversion lookup table *for use with the imaging object*,
- *the imaging object may be a printing cartridge, a substrate, or a scanner*;

II. Species of the embodiment disclosed on page 2, lines 16 – 24; in particular, the invention, in another form, that requires

- printing a plurality of test patches *using a printing cartridge* and the standard color conversion lookup table,
- measuring a plurality of test patches to obtain color data *associated with the printing cartridge*,
- generating a signature color data lookup table based on the color data,
- combining the signature color data lookup table with the standard color conversion lookup table to generate a composite color conversion lookup table *for use in printing with the printing cartridge*;

III. Species of the embodiment disclosed on page 2, lines 25 – 33; in particular, the invention, in yet another form, that requires

- printing a plurality of test patches *on a substrate* using the standard color conversion lookup table,
- measuring the plurality of test patches to obtain color data *associated with the substrate*,
- generating a signature color data lookup table based on the color data,
- combining the signature color data lookup table with the standard color conversion lookup table to generate a composite color conversion lookup table *for use in printing on the substrate*;

IV. Species of the embodiment disclosed on page 3, lines 1 – 7; in particular, the invention, in still another form, that requires

- measuring a plurality of test patches to obtain color data *associated with the scanner*,
- generating a signature color data lookup table based on the color data,
- combining the signature color data lookup table with the standard color conversion lookup table to generate a composite color conversion lookup table *for use in scanning with the scanner*,

2. During a telephone conversation with Elizabeth Jacobs on Thursday, August 16th, 2007, a provisional election was made without traverse to prosecute the invention of group I, claims 1 - 7. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8 – 45 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

3. The drawings are objected to because:

- **Fig. 1:** since both reference numbers **12** and **21** appear to be pointing to the "imaging apparatus", it is suggested that a note be added near reference number **21** indicating that it is an "imaging object" which may be one of "printing cartridge" **22**, "scanner" **24**, or "substrate" **44**;

- **Fig. 4:** if applicant intended to illustrate the *same* "color data" **69** in both a first "signature color data lookup table" **70** (containing data R2, G2, B2, L3, A1, B2) and a second signature color data lookup table associated with a "class" **72**, it is suggested that the color data **69** (containing R2, G2, B2, L2, A1, B2) of the second signature color data lookup table be made identical with the color data of the first signature color data lookup table; that is, it is suggested that L2 (of the second table) be changed to L3 (of the first table), or L3 (of the first table) be changed to L2 (of the second table);

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

- **Page 7, line 15:** for clarity, it is suggested that reference be made to Fig. 4 when referring to "test patches 68";

- **Page 10, line 33:** it is assumed that applicant intended to cite either step **S104** or **S108** instead of **S106** since the signature color data lookup table is stored in **S104** and retrieved in **S108**;

- **Page 14, line 32:** for clarity, it is suggested that reference number **62** be added after "lookup table";

- **Page 20, line 6:** it is assumed that applicant intended to cite **Fig. 5B** instead of **Fig. 5A** since the former figure pertains to a scanner;

Appropriate correction is required.

Claim Objections

5. Claim 5 is objected to because of the following informalities:

- **Line 3:** it is not clear whether "said signature color data lookup table" refers to a table within the "plurality of signature color data lookup tables" (**claim 4, line 2**), or the "signature color data lookup table" cited in **claim 1, line 6**;

  it is assumed that the reference is to the table cited in claim 1;

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 3 are rejected under 35 U.S.C. 102(b) as being anticipated by **BOWERS [US Patent Application 2002/0126301 A1]**.

As for claim 1, BOWERS teaches **a method for correcting color shift in an imaging system having an imaging object [**BOWERS teaches an "imaging object" (i.e., a printing cartridge); see **Fig. 2** ink cartridge. **Fig. 4** illustrates a process for a "calibration process of adjusting the output color value to be equal to the input color value"; **page 2, paragraph 19, lines 3 - 4],**

and having a standard color conversion lookup table associated with said imaging object [Fig. 3A and **3B** illustrate a "pre-existing color lookup table (LUT)"; the "standard conversion lookup table" corresponds to the "pre-existing color lookup table"; in **Fig. 3A,** the color conversion table is stored in a computer; **page 1, paragraph 18, lines 7 – 9;** in **Fig. 3B,** the color conversion table is stored in the printer; **page 1, paragraph 18, lines 9 – 12],**

comprising the steps of

measuring a plurality of test patches to obtain color data associated with said imaging object

[Fig. 1 print set of color patches; "An initial set of color patches is printed from at least one printer and on at least one print substrate"; **page 1, paragraph 15, lines 3 – 4.**

Fig. 1 measure color patches; "The printed color patches, having a predetermined input value, are measured for color values, such as tristimulus values"; **page 1, paragraph 16, lines 1 - 3];**

generating a signature color data lookup table based on said color data

[Fig. 1 generate calibration data. The "signature color data lookup table" corresponds to the "calibration data". "The input and measured color values, or raw data, are used to generate calibration data"; **page 1, paragraph 17, lines 2 – 3.** "The calibration data may be either or both the raw data and the adjusted value. The calibration data is stored preferably on a memory embedded in an ink cartridge. The LUT may also be stored on the memory, however, an LUT needs a large size of memory space. Therefore, it is advantageous to store only the raw data on the memory and create the LUT just before printing"; **page 1, paragraph 17, lines 5 - 12];**

and combining said signature color data lookup table with said standard color conversion lookup table to generate a composite color conversion lookup table for use with said imaging object

[BOWERS teaches that the "standard color conversion lookup table" (i.e., the "pre-existing color lookup table") "may be replaced, modified, or updated with the new color LUT generated in Fig. 1. Also, an adjustment value may be added to the pre-existing color LUT"; **page 1, paragraph 19, lines 13 - 17].**

Regarding claim 2, BOWERS further teaches the method of claim 1,

wherein said imaging object is *one of* a printing cartridge, a scanner and a substrate

[BOWERS teaches an "imaging object" which is a "printing cartridge"; see **Fig. 2].**

Regarding claim 3, BOWERS further teaches the method of claim 2, further comprising the steps of:

storing said signature color data lookup table in a memory associated with *one of* said imaging object, said imaging system, or an offsite location, for access by said imaging system

[BOWERS teaches that the "signature color data lookup table" (i.e., the "calibration data") is "stored preferably on a memory embedded in an ink cartridge"; **page 1, paragraph 17, lines 7 - 8];**

installing said imaging object into said imaging system

[BOWERS teaches that "it would be an advantage for a customer to purchase an ink cartridge with the color data already included in the memory of an ink cartridge to achieve the desired output color values"; **page 1, paragraph 5, lines 7 – 10. Fig. 4** illustrate a process by which the "signature color data lookup table" (i.e., calibration data) is read from an installed printing cartridge**];**

and retrieving said signature color data lookup table from said memory

[Fig. 4 step "read calibration data from ink cartridge"**].**

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 4, 5, 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **BOWERS [US Patent Application 2002/0126301 A1]** in view of **CHU [US Patent Application 2002/0149785 A1]**.

Regarding claim 4, BOWERS does not specifically teach all of the cited limitations.

Like, BOWERS, CHU teaches a similar method of separating a printing cartridge's color characteristics (i.e., a signature color data) from a standard profile (i.e., a standard color conversion lookup table). The "curve fitted density data 120" corresponds to the "signature color data" which "represents a suitable color correction profile for the color ink cartridge 124"; **page 2, paragraph 24, lines 6 – 8.** However, unlike BOWERS, CHU teaches that this signature data is stored on a website. "If the website 118 determines that the cartridge identifier 132 from the user computer system 100 matches the cartridge identifier 140 from the factory computer system 136, then the curve fitted density data 120 associated with the cartridge identifier 140 is provided or transmitted over the Internet 122 to the user computer system 100"; **page 2, paragraph 23, 13 – 19.** CHU further teaches that "it should be understood that the website 118 can be used to maintain multiple sets of ink cartridge characterization data and the associated cartridge identifier for each model of ink cartridge that can be used in the color ink jet printer 116"; **page 2, paragraph 24, lines 13 – 17.**

For the various types of printing cartridges (e.g., tri-color [cyan-magenta-yellow], black, "photo" [containing light cyan-light magenta], low and high fill volume/capacity cartridges, others [gray, red, green, blue inks], ...), it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to

> **generate a plurality of signature color data lookup tables for a plurality of imaging objects** (i.e., for a plurality of printing cartridges)

Based on the aforementioned types of printing cartridges (i.e., tri-color, black, "photo", high and low fill, ...), it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to

> **subdivide said plurality of signature color data lookup tables into classes of signature color data lookup tables based on a color similarity**

Based on the aforementioned types of printing cartridges (i.e., tri-color, black, "photo", high and low fill, ...), it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to

> **generate a color class table for each class of signature color data lookup tables**

so that printing cartridge characterization data based on a "color similarity" could be re-used for all similar printing cartridges associated with a "class". For example, all tri-color printing cartridges regardless of fill volume would use the same "color class table" or unique "signature color data lookup table".

As noted above, CHU teaches a "cartridge identifier" (or a "class code"). As shown in **Fig. 1**, this identifier is stored on the "website" **118**, and can be retrieved from a "color ink cartridge" **124** and stored in the memory **132** of a user computer system **100**. Furthermore, CHU teaches that the cartridge identifier (or class code) is associated with the "curve fitted density data" (or color class table). From **Fig. 2,** CHU cites, "in step 212, the curve fitted density data 120 for each constituent color is stored in association with the color ink cartridge identifier"; **page 3, paragraph 33, lines 1 – 3.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to

> **assign a class code** (or "cartridge identifier") **to each said color class table** (or "signature color data lookup table" specific to a type of printing cartridge);

so that characterization data particular to a type of printing cartridge (i.e., color class table) could be retrieved over the Internet by means of a cartridge identifier (or class code).

BOWERS and CHU both teach

> **storing each said color class table in at least *one of* a first memory associated with said imaging object, a second memory associated with said imaging system, and an *offsite memory*, for access by said imaging system**
>
> [As noted earlier, BOWERS teaches storing the "color class table" (or calibration data) in a printing cartridge memory. The "signature color data lookup table" (i.e., the "calibration data") is "stored preferably on a memory embedded in an ink cartridge"; **page 1, paragraph 17, lines 7 – 8**.
>
> CHU teaches that the "color class table" (or "curve fitted density data") is stored in an "offsite memory" (i.e., on a website **118**; see **Fig. 1**)];

CHU teaches

> **storing said class code** (or "cartridge identifier") **in at least *one of* said first memory associated with said imaging object, said second memory associated with said imaging system, and said offsite memory, for access by said imaging system**
>
> [As shown in **Fig. 1,** the "cartridge identifier" **140** is stored on the "website" **118**; it is also stored in the printing cartridge's memory; "a cartridge identifier 132 ... is read from a memory or other storage device of the color ink cartridge 124"; **page**

2, paragraph 23, lines 1 – 4. The cartridge identifier is read from the printing cartridge and stored in the memory **132** of a "user computer system" **100].**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to store a "class code" (or "cartridge identifier") in a printing cartridge or offsite memory (i.e., website) so that characterization data particular to a type of printing cartridge (i.e., color class table) could be retrieved over the Internet by means of a cartridge identifier (or class code).

Regarding claim 5, BOWERS does not specifically teach the method of claim 4, further including the step of

> **associating said imaging object with a corresponding color class table, said corresponding color class table serving as said signature color data lookup table**

As noted above, CHU teaches associating a printing cartridge (i.e., "imaging object") with "curve fitted density data" (i.e., "color class table" or "signature color data lookup table") by means of a "cartridge identifier".

CHU teaches that the cartridge identifier (or class code) is associated with the "curve fitted density data" (or color class table). From **Fig. 2**, CHU cites, "in step 212, the curve fitted density data 120 for each constituent color is stored in association with the color ink cartridge identifier"; **page 3, paragraph 33, lines 1 – 3].**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to associate a type of printing cartridge with a unique, characterization table (i.e., color class table) which would serve to correct the colors produced by a specific printer and printing cartridge combination.

Regarding claim 6, BOWERS does not specifically teach the method of claim 5,

> **wherein said associating step includes associating said class code with said imaging object.**

CHU teaches associating a cartridge identifier (or "class code") with a printing cartridge (or "imaging object").

CHU cites that "it should be understood that the website 118 can be used to maintain multiple sets of ink cartridge characterization data and the *associated cartridge identifier for each model of ink cartridge* that can be used in the color ink jet printer 116"; **page 2, paragraph 24, lines 13 – 17.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to associate a type of printing cartridge (or "imaging object") with a unique cartridge identifier (or "class code") which would allow a website storing printing cartridge characterization data (i.e., "curve fitted density data") to retrieve the appropriate data for a particular type of printing cartridge.

Regarding claim 7, BOWERS does not specifically teach the method of claim 5, further comprising the steps of:

> **installing said imaging object** (or "printing cartridge") **into said imaging system;**
>
> **retrieving said class code** (or "cartridge identifier") **from said first memory, said second memory, *or* said offsite memory;**
>
> **and retrieving said signature color data lookup table** (or "calibration data" or "curve fitted density data") **from said first memory, said second memory, *or* said offsite memory.**

CHU teaches these steps as shown in **Fig. 3.** "Beginning in step 300, it is determined if a new color ink cartridge has been added to the color ink jet printer 116"; **page 4, paragraph 35, lines 3 – 5.** "If a new color ink cartridge has been added, then the cartridge identifier 132 is fetched from the color ink cartridge 124 in step 302"; **page 4, paragraph 35, lines 7 – 9.** Finally, "in step 304, the cartridge identifier 132 is transmitted or provided over the Internet 122 to the website 118 to fetch the curve fitted density data 120 for the color ink cartridge 124 from the website 118. The curve fitted density data 120 can be fetched through a look-up function based on the cartridge identifier 132"; **page 4, paragraph 35, lines 10 – 15.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of BOWERS with those of CHU in order to associate a type of printing cartridge (or "imaging object") with a unique cartridge identifier (or "class code") which would allow a website storing printing cartridge characterization data (i.e., "curve fitted density data") to retrieve the appropriate data for a particular type of printing cartridge.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter L. Cheng whose telephone number is 571-270-3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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